

## **REMARKS**

Claims 7-45 are pending in the above identified application. The Examiner rejected claims 7-9, 11-17, 20, 23-25, 28 and 32-45. The Examiner objected to claims 10, 18-22, 26, 27, and 31, indicating that those claims would be allowable if rewritten in independent form including all of the limitations of the base claim. Applicants have amended claims 7, 38, and 45 in order to clarify the invention. No new matter has been added. Applicants herein traverse the Examiner's rejections.<sup>1</sup>

### **Claim Rejections Under 35 U.S.C. § 103**

In making a rejection under 35 U.S.C. § 103(a), the Examiner must establish the three elements of a *prima facie* case of obviousness. MPEP § 2142. First, the Examiner must show that the prior art references teach all elements of the claims. Second, the Examiner must show that the prior art provides the reason or motivation to make the claimed combination. The mere fact that references can be combined does not create a *prima facie* case of obviousness. Moreover, the motivation to combine cannot come from the applicant's own disclosure but must come from the prior art itself. Additionally, no motivation to combine references exists where doing so would render one of the prior art references unsatisfactory for its intended purpose. Third , the Examiner must prove that there is a reasonable expectation of success in combining the prior art references.

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<sup>1</sup> It should be noted that the Examiner has made many comments regarding the claims and the teachings of the prior art. Applicants do not automatically agree with or acquiesce in any of the Examiner's comments regarding interpretation of the teachings of the prior art or the claimed invention by not specifically addressing any of those comments herein.

## **Claims 7-9 and 15**

The Examiner rejected claims 7-9 and 15 under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,128,114 (“Wingo”) in view of U.S. Patent No. 5,715,280 (“Sandberg”). However, claims 7-9 and 15 are allowable over the combination of Wingo and Sandberg.

### I. The Combination of Wingo and Sandberg does not teach all of the elements of claim 7.

The combination of Wingo and Sandberg does not teach all of the elements of the claims. To provide clarity, claim 7 has been amended to recite “a plurality of receivers, each of the plurality of receivers receiving signals from one of a plurality of transmission bands on a single electrically conductive transmission medium.” Therefore, claim 7 has been amended to be directed to transmission of data over conducting media.

Wingo teaches an optical WDM system. As taught in Wingo,

[b]riefly stated, the present invention provides a method of and a system for transmitting and receiving at a distance a serial stream of electrical data bits by sequentially substantially simultaneously converting sequential sets of bits of the serial stream of electrical data bits into optical bits, each optical bit having a different wavelength, and multiplexing each optical bit of each set into a single multiwavelength optical pulse. In other words, the method and system convert the serial stream of electrical data bits into a series of parallel optical data bits. The method couples the single multiwavelength optical pulses to an optical transmission medium.

(Wingo, col. 1, lines 49-59.) Further, as taught in Wingo, “[t]he individual single wavelength optical signals are output at a plurality of outputs to a plurality of optical receivers.” (Wingo, col. 3, lines 25-27.) As the Examiner states, “Wingo does not however disclose the make up of the receivers.” (OA, page 2.) Further, the receivers taught in Wingo are optical receivers and do not receive signals from an electrically conductive medium. Therefore, Wingo at least does not teach “a filter coupled to receive signals from the down converter, the filter substantially filtering

out signals not in the base band” or “an analog-to-digital converter coupled to receive signals from the filter and generate digitized signals” as is recited in claim 7.

Sandberg does not cure the defects in the teachings of Wingo.

Sandberg teaches that

The decoder recovers K symbols,  $S_p \dots S_{p+K-1}$ , from an analog signal generated by modulating M sinusoidal carriers for a frame period. Each carrier is modulated with an amplitude proportional to the value of one of M symbols, the  $i^{\text{th}}$  carrier being modulated by symbol  $S_i$ . The K symbols are a contiguous subset of the M symbols. The decoder includes a down-converter for down-converting to the modulated signal on the communication channel to generate a down-converted signal in which the carriers corresponding to  $S_p \dots S_{p+K-1}$  occupy frequencies starting from 0. An analog-digital converter generates K time-domain samples in each frame period from the down-converted signal. These time-domain samples are converted to K frequency-domain values representing the symbols  $S_p \dots S_{p+K-1}$  by a time-domain to frequency-domain converter based on an overlapped transform.

(Sandberg, col. 2, lines 15-29.) Therefore, Sandberg teaches a system where a subset of carriers are down-converted such that the center channel of the series of channels is at DC. The total group of carriers ( $S_p$  through  $S_{p+K-1}$ ) are then digitized in an A/D converter and an FFT analysis is utilized to reconstruct the data from the subset of carriers. As a result, Sandberg does not teach “a filter coupled to receive signals from the down converter, the filter substantially filtering out signals not in the base band” because Sandberg relies on retaining data from a subset of the carriers. The A/D converter taught in Sandberg samples data at the group of frequencies and not just the data at the base-band frequencies. Consequently, Sandberg does not teach “an analog-to-digital converter coupled to receive signals from the filter and generate digitized signals.”

II. There is no motivation to combine the teachings of Wingo and Sandberg.

Additionally, there is no motivation to combine the teachings of Wingo and Sandberg as is suggested by the Examiner. As discussed above, Wingo teaches an optical WDM system while Sandberg teaches an electrical transmission system over conductive media. One skilled in the art would not be motivated to combine the teachings of an optical transmission system with those of transceiver system that operates over conductive media.

Wingo teaches an optical transmission system utilizing wavelength division multiplexing (WDM.) As taught in Wingo,

Receiving equipment 17 includes a wavelength division demultiplexer 35, which is optically coupled to incoming optical fiber 31. Wavelength division demultiplexer 35 is adapted to separate a multiwavelength signal received at its input into a plurality of individual single wavelength optical signals. The individual single wavelength optical signals are output at a plurality of outputs to a plurality of optical receivers 37.

(Wingo, col. 3, lines 20-26.) Therefore, each of the receivers receives a single wavelength carrier to decode. Further, each of the receivers receives an optical signal.

The receivers of Sandberg receive a multi-carrier signal from a conductive medium. (See, e.g., Figure 1, communication link 113.) Transmission over conductive media requires greater filtering to recover from distortion in phase and amplitude. As stated in Sandberg, “[i]t should be noted that communication link 113 will, in general, both attenuate and phase shift the signal represented by the  $X_i$ . ” (Sandberg, col. 4, lines 36-39.)

Therefore, the transceiver system taught in Wingo and the transceiver system taught in Sandberg have greatly different considerations and constraints. Optical media, for example, does not distort signals transmitted optically over it like conductive media does.

Further, the teachings of Sandberg are not applicable to the teachings of Wingo and would render the system taught in Wingo unsatisfactory for its intended purpose. Wingo teaches a system where data on different carriers are transmitted in different wavelengths. As discussed above, each receiver in Wingo receives data from a single wavelength. However, Sandberg teaches that a subset of the group of carriers should be downconverted to the baseband and the receiver should receive the entire subset. Those teachings are incompatible.

Consequently, one skilled in the art would not be motivated to combine the teachings of a transceiver system for transmitting in an optical medium with a transceiver system for transmitting data over a conducting medium. The considerations and requirements for transmitting and receiving data in those two media are vastly different.

### *III. There is no likelihood of success in combining the teachings of Wingo and Sandberg*

As discussed above, the teachings of Wingo and Sandberg are incompatible. Wingo teaches that each of the receivers receives optical signals at a single wavelength whereas the teachings of Sandberg would require that receivers receive optical signals from a subset of wavelengths. Therefore, there is no likelihood of success in combining the teachings of Wingo and Sandberg as is suggested by the Examiner.

### *IV. Conclusion*

Therefore, claim 7 is allowable over the combination of Wingo and Sandberg because (1) the combination of Wingo and Sandberg does not teach all of the elements of claim 7, (2) there is no motivation to combine Wingo and Sandberg, and (3) there is no likelihood of success in combining the teachings of Wingo and Sandberg.

Claims 9 and 15 both depend from claim 8, which depends from claim 7. Therefore, claims 8, 9, and 15 are each allowable over the combination of Wingo and Sandberg for at least the same reasons as does claim 7.

### **Claims 11-15**

The Examiner rejected claims 11-15 under 35 U.S.C. 103(a) as being unpatentable over Wingo in view of Sandberg et al. as applied to claim 9, and further in view of U.S. Patent No. 5,844,950 (“Aono”).

Claims 11-15 each depend from claim 7. As discussed above, claim 7 is allowable over the combination of Wingo and Sandberg. Aono does not cure the defects in the teachings of Wingo and Sandberg. Therefore, claim 7 is allowable over the combination of Wingo, Sandberg, and Aono. Claims 11-15 are therefore allowable over the combination of Wingo, Sandberg, and Aono for at least the same reasons as is claim 7.

### **Claims 16-17**

The Examiner rejected claims 16-17 under 35 U.S.C. 103(a) as being unpatentable over Wingo in view of Sandberg et al. as applied to claim 8, and further in view of U.S. Patent No. 4,599,732 (“LeFever”).

As discussed above, claim 7 is allowable over the combination of Wingo and Sandberg. LeFever does not cure the defects in the teachings of Wingo and Sandberg. Claim 7 is therefore allowable over the combination of Wingo, Sandberg, and LeFever. Claims 16-17 depend from

claim 7 and are therefore allowable over the combination of Wingo, Sandberg, and LeFever for at least the same reasons as is claim 7.

### **Claim 23**

The Examiner rejected claim 23 under 35 U.S.C. 103(a) as being unpatentable over Wingo in view of Sandberg et al. as applied to claim 8, and further in view of LeFever.

As discussed above, claim 7 is allowable over the combination of Wingo, Sandberg, and LeFever. Claim 23 depends from claim 7. Therefore, claim 23 is allowable over the combination of Wingo, Sandberg, and LeFever for at least the same reasons as is claim 7.

### **Claim 24**

The Examiner rejected claim 24 under 35 U.S.C. 103(a) as being unpatentable over Wingo in view of Sandberg et al. as applied to claim 8, in view of LeFever, and further in view of U.S. Patent No. 6,351,677 B1 (“Leyonhjelm”.)

As discussed above, claim 7 is allowable over the combination of Wingo, Sandberg, and LeFever. Leyonhjelm does not cure the defects in the teachings of Wingo, Sandberg, and LeFever. Therefore, claim 7 is allowable over the combination of Wingo, Sandberg, LeFever, and Leyonhjelm. Claim 24 depends from claim 7 and therefore is allowable over the combination of Wingo, Sandberg, LeFever, and Leyonhjelm for at least the same reasons as is claim 7.

### **Claims 25 and 28**

The Examiner rejected claims 25 and 28 under 35 U.S.C. 103(a) as being unpatentable over Wingo in view of Sandberg as applied to claim 8, and further in view of U.S. Patent No. 6,121,828 (“Sasaki”.)

As discussed above, claim 7 is allowable over the combination of Wingo and Sandberg. Sasaki does not cure the defects in the teachings of Wingo and Sandberg. Therefore, claim 7 is allowable over the combination of Wingo, Sandberg, and Sasaki. Claims 25 and 28 depend from claim 7. Therefore, claims 25 and 28 are allowable over the combination of Wingo, Sandberg, and Sasaki for at least the same reasons as is claim 7.

### **Claims 32-37**

The Examiner rejected claims 32-37 under 35 U.S.C. 103(a) as being unpatentable over Wingo in view of Sandberg et al., and further in view of U.S. Patent No. 6,351,293 B1 (“Perlow”.)

As discussed above, claim 7 is allowable over the combination of Wingo and Sandberg. Perlow does not cure the defects in the teachings of Wingo and Sandberg. Therefore, claim 7 is allowable over the combination of Wingo, Sandberg, and Perlow. Claims 32-37 depend from claim 7. Therefore, claims 32-37 are allowable over the combination of Wingo, Sandberg, and Perlow for at least the same reasons as is claim 7.

### **Claims 38-39**

The Examiner rejected claims 38-39 under 35 U.S.C. 103(a) as being unpatentable over Wingo in view of Sandberg.

Similarly to claim 7, discussed above, claim 38 has been amended to recite “receiving an input signal into a plurality of receivers coupled to a single conducting transmission medium, each of the plurality of receivers receiving signals from one of a plurality of transmission bands” to clarify that claim 38 is directed to transmission of data over conducting media. Further, similarly to claim 7, claim 38 recites “filtering the base band signal to remove signals not in the base band” and “digitizing the filtered base band signal to obtain a digitized signal.” Therefore, for at least the same reasons that claim 7 is allowable over the combination of Wingo and Sandberg, claim 38 is allowable over the combination of Wingo and Sandberg. Claim 39 depends from claim 38 and is therefore allowable over the combination of Wingo and Sandberg for at least the same reasons as is claim 38.

### **Claims 41-42**

The Examiner rejected claims 41-42 under 35 U.S.C. 103(a) as being unpatentable over Wingo in view of Sandberg as applied to claim 39, and further in view of LeFever.

As discussed above, claim 38 is allowable over the combination of Wingo and Sandberg. LeFever does not cure the defects in the teachings of Wingo and Sandberg. Claim 38 is therefore allowable over the combination of Wingo, Sandberg, and LeFever. Claims 41-42 depend from

claim 38 and are therefore allowable over the combination of Wingo, Sandberg, and LeFever for at least the same reasons as is claim 38.

### **Claim 43**

The Examiner rejected claim 43 under 35 U.S.C. 103(a) as being unpatentable over Wingo in view of Sandberg as applied to claim 39, and further in view of U.S. Patent No. 6,441,683 B1 (“Hwang”).

As discussed above, claim 38 is allowable over the combination of Wingo and Sandberg. Hwang does not cure the defects in the teachings of Wingo and Sandberg. Hwang does not cure the defects in the teachings of Wingo and Sandberg. Therefore, claim 38 is allowable over the combination of Wingo, Sandberg, and Hwang. Claim 43 depends from claim 38 and is therefore allowable over the combination of Wingo, Sandberg, and Hwang for at least the same reasons as is claim 38.

### **Claim 44**

The Examiner rejected claim 44 under 35 U.S.C. 103(a) as being unpatentable over Wingo in view of Sandberg as applied to claim 38, and further in view of LeFever.

As discussed above, claim 38 is allowable over the combination of Wingo, Sandberg, and LeFever. Claim 44 depends from claim 38 and is therefore allowable over the combination of Wingo, Sandberg, and LeFever for at least the same reasons as is claim 38.

### **Claim 45**

The Examiner rejected claim 45 under 35 U.S.C. 103(a) as being unpatentable over Wingo in view of Sandberg.

Similarly to claim 7, discussed above, claim 45 has been amended to recite “means for receiving an input signal from a single conductive transmission medium, the input signal including a plurality of transmission bands,” clarifying that the claims are directed to conductive media and not optical media. Further, claim 45 recites “means for obtaining a digital signal from the base-band signal.” As discussed above with respect to claim 7, Wingo is directed to an optical system and does not teach a receiver that receives data from a conductive media. Sandberg teaches that the receivers receive a subset of channels and not the data that has been downconverted to the baseband. Therefore, similarly with claim 7, claim 45 is allowable over the combination of Wingo and Sandberg.

### **Allowable Subject Matter**

The Examiner has objected to claims 10, 18-22, 26-27, and 31 as depending from a rejected base claim, but has indicated that those claims would be allowable if rewritten in independent form. As Applicants indicate above, however, claim 7, from which these claims depend, is allowable over the cited prior art. Therefore, claims 10, 18-22, 26-27, and 31 depend from an allowable claim. Applicants request that the Examiner rescind this objection.

### Conclusion

Applicants respectfully request that this Amendment under 37 C.F.R. § 1.116 be entered by the Examiner, placing claims 7-45 in condition for allowance. Applicants submit that the proposed amendments of claims 7, 38, and 45 do not raise new issues or necessitate the undertaking of any additional search of the art by the Examiner, since all of the elements and their relationships claimed were either earlier claimed or inherent in the claims as examined. Therefore, this Amendment should allow for immediate action by the Examiner.

Furthermore, Applicants respectfully point out that the final action by the Examiner presented some new arguments as to the application of the art against Applicants' invention. It is respectfully submitted that the entering of the Amendment would allow the Applicants to reply to the final rejections and place the application in condition for allowance.

Finally, Applicants submit that the entry of the amendment would place the application in better form for appeal, should the Examiner dispute the patentability of the pending claims.

In view of the foregoing remarks, Applicants submit that this claimed invention, as amended, is neither anticipated nor rendered obvious in view of the prior art references cited against this application. Applicants therefore request the entry of this Amendment, the Examiner's reconsideration and reexamination of the application, and the timely allowance of the pending claims.

Please grant any extensions of time required to enter this response and charge any additional required fees to our deposit account 06-0916.

Respectfully submitted,

FINNEGAN, HENDERSON, FARABOW,  
GARRETT & DUNNER, L.L.P.

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By: Jerry Danby, reg. 57228, for  
Gary J. Edwards  
Reg. No. 41,008

FINNEGAN, HENDERSON, FARABOW,  
GARRETT & DUNNER L.L.P.  
901 New York Avenue, N.W.  
Washington, D.C. 20001-4413  
(650) 849-6622

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